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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/344,169	06/24/1999	WILLIAM ERIC CORR	30454-230	8742

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EXAMINER

JONES, HUGH M

ART UNIT PAPER NUMBER

2123

DATE MAILED: 08/09/2002

#10

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/344,169

Applicant(s)

Corr

Examiner

Hugh Jones

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136 (a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on Jul 1, 2002.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11; 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-16 is/are pending in the application.
- 4a) Of the above, claim(s) _____ is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-16 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claims _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☒ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on _____ is/are a) ☐ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☒ The proposed drawing correction filed on Jul 1, 2002 is: a) ☒ approved b) ☐ disapproved by the Examiner.
If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

- 13) ☒ Acknowledgement is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
a) ☒ All b) ☐ Some* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

*See the attached detailed Office action for a list of the certified copies not received.

- 14) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. § 119(e).
a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgement is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

- 1) ☐ Notice of References Cited (PTO-892) 4) ☐ Interview Summary (PTO-413) Paper No(s). _____
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948) 5) ☐ Notice of Informal Patent Application (PTO-152)
- 3) ☐ Information Disclosure Statement(s) (PTO-1449) Paper No(s). _____ 6) ☐ Other:

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DETAILED ACTION

Introduction

1. Claims 1-16 of U. S. Application 09/344,169, filed on 24-June-1999, are presented for examination. Applicants have not numbered the lines in the application - therefore, the Examiner will refer to page and paragraph number, when referencing the application. If this is inconvenient, Applicants may wish to correct the deficiency.

Specification

2. The abstract of the disclosure is objected to because of new matter, for the following reasons. The amendment filed is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: *wherein a user selects a mode of operation*. This feature does not appear to disclosed in the original specification. Furthermore, the meaning of this feature is unclear. Applicant is required to cancel the new matter in the reply to this Office Action.

Information Disclosure Statement

3. It is noted that Applicants have not provided an IDS. Applicants have admitted that they are aware of prior art - see description of figure 1, page 1 of the specification and the last sentence of the last full paragraph on page 7 of the specification. Furthermore, electromagnetic

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coupling as it relates to IC design and timing is extremely well known. As these references are not readily available to the Examiner, the applicant should provide the office with copies of the reference in any response to this action, as per Applicant's duty to disclose all information material to the patentability of the application (37 CFR 1.56).

Claim Objections

4. The following is a quotation of 37 C.F.R. § 1.75 (d)(1):

The claim or claims must conform to the invention as set forth in the remainder of the specification and terms and phrases used in the claims must find clear support or antecedent basis in the description so that the meaning of the terms in the claims may be ascertainable by reference to the description.

5. **Claims 1-16 are objected to because of the following.** Appropriate correction and/or explanation is required.

- claims 9-10 refer to "perturbation" coupling (perturb a given wire, for example). This does not appear to be a standard term in the art. Its meaning, in the context of the invention is unknown, and should be reworded. Perhaps "*electromagnetic* coupling"?

- Claim 6 is objected to under 37 CFR 1.75(c), as being of improper dependent form for failing to further limit the subject matter of a previous claim. Claim 6 is functionally identical to claims 1 and 3. Applicant is required to cancel the claim(s), or amend the claim(s) to place the claim(s) in proper dependent form, or rewrite the claim(s) in independent form. Functionally, Claim 6 indicates that the no effects (*likely, possible or unlikely to affect timing*) are to be taken into account. Limitation 6 of claim 1 is inoperative under such a condition.

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- the claims recite *allowing* a user to select a mode of operation. The claims should recite that a user *actually selects* a mode of operation.

Claim Rejections - 35 USC § 112

6. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

7. **Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to enable one skilled in the art to which it pertains, or with which it is most nearly connected, to make and/or use the invention.**

8. The specification provides little detail pertaining to determining topological effects on crosstalk, calculating the relationship between clocked timing and crosstalk, what type of signal is carried on the aggressor wire, determination/calculation of timing margins which take into account crosstalk, and scaling.

9. The amendment filed 7/1/2002 introduces new matter into the disclosure. The added material which is not supported by the original disclosure is as follows: *wherein a user selects a mode of operation*. Claims 1-16 now recite this feature.

10. **Claims 1-16 are rejected under 35 U.S.C. 112, first paragraph, as containing subject matter which was not described in the specification in such a way as to reasonably convey to**

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one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention.

11. Applicants have stated

“...that to the extent that such subject matter is not expressly disclosed in the prior art, it is fully described in the prior art, including in the references cited in the present Office Action. As noted in the Office Action, this was also pointed out in the last full paragraph of page 7 of the Specification.”

In other words, Applicants appear to be making a blanket assertion that features not expressly disclosed (*or incorporated by reference*) in the specification are to be considered part of the specification by virtue of their being disclosed in the prior art. This appears to be an attempt to change the specification via attorney argument, to the extent necessary to traverse the 112(1) enablement rejections, and is considered as attempt to introduce new matter into the specification.

See MPEP section 2163.06:

“Relationship of Written Description Requirement to New Matter

Lack of written description is an issue that generally arises with respect to the subject matter of a claim. If an applicant amends or attempts to amend the abstract, specification or drawings of an application, an issue of new matter will arise if the content of the amendment is not described in the application as filed. Stated another way, information contained in any one of the specification, claims or drawings of the application as filed may be added to any other part of the application without introducing new matter. There are two statutory provisions that prohibit the introduction of new matter: 35 U.S.C. 132 - No amendment shall introduce new matter into the disclosure of the invention; and, similarly providing for a reissue application, 35 U.S.C. 251 - No new matter shall be introduced into the application for reissue.”

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Therefore, a 112(1) written description rejection has been applied against the claims. Specifically, The specification provides little detail pertaining to determining topological effects on crosstalk, calculating the relationship between clocked timing and crosstalk, what type of signal is carried on the aggressor wire (as in claim 2), determination/calculation of timing margins which take into account crosstalk, and scaling (as in claim 7).

12. The amendment filed 7/1/2002 introduces new matter into the disclosure. The added material which is not supported by the original disclosure is as follows: *wherein a user selects a mode of operation*. Claims 1-16 now recite this feature.

13. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

14. **Claims 1-16 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.**

- Claim 1, for example refers to “allowing a user to select a mode of operation”. The meaning is unknown. Operation of what? Which modes?

Incorporation by Reference

15. There are a number of issues relating to incorporation by reference and the 112(1) rejections which are addressed because they affect claim interpretation. It is noted that the instant application

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recites “means for” (“Means For” language is present in the “Summary of the Invention”) and further refers to non-patent literature in the specification (Applicants have admitted [last sentence of the last full paragraph on page 7 of the specification] that those of ordinary skill in the art at the time of the invention would have known the details pertaining to the calculation of coupling in various geometries.). This is interpreted as an apparent attempt to *incorporate by reference* disclosure in an attempt to traverse a 112(1) rejection. However, this is an improper incorporation by reference in so far as there was no express incorporation by reference. Mere reference in the instant application to such material as if it were part of the specification is *also* not acceptable because: 1) it appears to be essential matter (essential matter may not be incorporated from non-patent literature) and, 2) “means for” claims may not rely on any incorporated material (see *Atmel Corp. v. Information Storage Device, Inc.*, discussed later).

16. Section 2163.02 of the MPEP Standard for Determining Compliance With the Written Description.

“The courts have described the essential question to be addressed in a description requirement issue in a variety of ways. *An objective standard for determining compliance with the written description requirement is, "does the description clearly allow persons of ordinary skill in the art to recognize that he or she invented what is claimed."* In *re Gosteli*, 872 F.2d 1008, 1012, 10 USPQ2d 1614, 1618 (Fed. Cir. 1989). Under *Vas-Cath, Inc. v. Mahurkar*, 935 F.2d 1555, 1563-64, 19 USPQ2d 1111, 1117 (Fed. Cir. 1991), *to satisfy the written description requirement, an applicant must convey with reasonable clarity to those skilled in the art that, as of the filing date sought, he or she was in possession of the invention, and that the invention, in that context, is whatever is now claimed. The test for sufficiency of support in a parent application is whether the disclosure of the application relied upon "reasonably conveys to the*

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artisan that the inventor had possession at that time of the later claimed subject matter." Ralston Purina Co. v. Far-Mar-Co., Inc., 772 F.2d 1570, 1575, 227 USPQ 177, 179 (Fed. Cir. 1985) (quoting In re Kaslow, 707 F.2d 1366, 1375, 217 USPQ 1089, 1096 (Fed. Cir. 1983)).

Whenever the issue arises, the fundamental factual inquiry is whether a claim defines an invention that is clearly conveyed to those skilled in the art at the time the application was filed. The subject matter of the claim need not be described literally (i.e., using the same terms or in haec verba) in order for the disclosure to satisfy the description requirement. If a claim is amended to include subject matter, limitations, or terminology not present in the application as filed, involving a departure from, addition to, or deletion from the disclosure of the application as filed, the examiner should conclude that the claimed subject matter is not described in that application. This conclusion will result in the rejection of the claims affected under 35 U.S.C. 112, first paragraph - description requirement, or denial of the benefit of the filing date of a previously filed application, as appropriate. 220 F.3d 1345, 55 U.S.P.Q.2d (BNA) 1636 (Fed. Cir. 2000)."

17. Enablement and written description are separate and distinct issues as it relates to the question of incorporation by reference. A rejection based on the enablement requirement of the statute may not be sustainable in this regard since the general incorporation of a U.S. patent by reference in appellant's specification may be sufficient to indicate what is likely to be known by persons of ordinary skill in the art. Cf. In re Howarth, 654 F.2d 103, 210 USPQ 689 (CCPA 1981).

The issue of compliance with the description requirement, however, is another matter entirely.

In this connection, attention is directed to In re Blaser, 556 F.2d 534, 194 USPQ 122, 125 (CCPA 1977). The function of the description requirement is to ensure that the applicant had possession, as of the filing date of his application, of the specific subject matter later claimed by him. It is required that the specification describe the invention sufficiently for those of ordinary skill in the art to

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recognize that the applicant invented the subject matter he now claims. In re Smythe, 480 F.2d 1376, 178 USPQ 279, 284 (CCPA 1973). That a person skilled in the art, given the incorporated disclosures, *might* decide to combine the teachings with those explicitly disclosed by Applicants is not a sufficient indication to that person that such is described as a particular feature of appellant's invention. *The doctrine of incorporation by reference is of no avail to applicants in this regard since there is no specific indication in the instant specification of the particular features disclosed by the incorporated references which correspond to those as claimed; nor does the specification identify the specific portions of the patent which applicant may have intended to rely upon to supplement his disclosure.* The purpose of incorporation by reference in an application of matter elsewhere written down is for economy, amplification, or clarity of exposition, by means of an incorporating statement clearly identifying the subject matter which is incorporated and where it is to be found. In re de Seversky, 474 F.2d 671, 177 USPQ 144, (CCPA 1973).

18. With respect to “means for” claims, see Atmel Corp. v. Information Storage Device, Inc., 198 F.3d 1374 (Fed. Cir. 1999). In *Atmel*, the Federal Circuit reversed summary judgment that a means-plus-function claim was invalid for indefiniteness because the corresponding structure was in an article that had been incorporated by reference. Here, the majority explained that the search for corresponding structure should be done from the vantage point of one skilled in the art (i.e., the structure need not be explicit if it would clear to a skilled artisan). The court went on to say that the structure supporting the means-plus-function element must appear in the specification. A patent may not rely on a document that is incorporated by reference to support structure corresponding

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to a means-plus-function limitation in a claim. The structure corresponding to the recited function must be described within the four corners of the patent specification. The court also discussed the use of extrinsic evidence to construe a means-plus-function claim and to find corresponding structures.

19. With respect to the “means for” claims, it is interpreted that the structure corresponding to the recited functions is only that which is described within the four corners of the instant patent specification.

Claim Interpretations

20. The Examiner has interpreted the claims as subsequently discussed.

21. Applicants have admitted [last sentence of the last full paragraph on page 7 of the specification] that those of ordinary skill in the art at the time of the invention would have known the details pertaining to the calculation of coupling in various geometries.

22. The broadest reasonable interpretation of the claim language has been give to the claims. Claim 8, 10, 14-16 have been interpreted in view of 35 U.S.C. 112, and *In re Donaldson*, 16 F.3d 1189, 29 USPQ2d 1845 (Fed. Cir. 1994). Reciting the pertinent section of 35 U.S.C. 112, paragraph six:

An element in a claim for a combination may be expressed as a means or step for performing a specified function without the recital of structure, material, or acts in support thereof, and such claim shall be construed to cover the corresponding structure, material, or acts described in the specification and equivalents thereof.

23. “Means For” language is present in the specification (“Summary of the Invention”). The Examiner interprets that this only refers to other portions of the specification. Applicants have not

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incorporated any material into the specification. Therefore, the “means for” claims only refer, via “means for” language, to the four corners of the specification.

24. Applicant’s invention will be interpreted as discussed for purposes of a prior art rejection.

Claim Rejections - 35 USC § 102

25. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

26. A person shall be entitled to a patent unless --

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

(e) the invention was described in a patent granted on an application for patent by another filed in the United States before the invention thereof by the applicant for patent, or on an international application by another who has fulfilled the requirements of paragraphs (1), (2), and (4) of section 371(c) of this title before the invention thereof by the applicant for patent.

27. **Claims 1-16 are rejected under 35 U.S.C. 102(b) as being clearly anticipated by Gao et al. or Petschauer et al..**

28. *Gao et al.* disclose “*Minimum crosstalk channel routing.*” They further disclose that as technology advances, interconnection wires are placed in closer proximity and circuits operate at higher frequencies. Consequently, reduction of crosstalk between interconnection wires becomes an important consideration in VLSI design. In this paper, they study the gridded channel routing problem with the objective of satisfying crosstalk constraints for the nets. They propose a new approach to the problem which *utilizes existing channel routing algorithms and improves upon the routing results by permuting the routing tracks. The permutation problem is proven to be*

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NP-complete. A novel mixed ILP formulation and effective procedures for reducing the number of variables and constraints in the mixed ILP formulation are then presented. *Gao et al.* further disclose determining whether a line is critical (page 465, col. 1); crosstalk constraints and “ranking” of critical conductors (page 465, col. 2, first full paragraph; page 466, section II, first paragraph); ranking and routing the channels (page 465, col. 2, second paragraph to end of section I, page 466; page 466, section II, first and second paragraphs); and track permutations (page 467, col. 1, last paragraph to page 470, end of section IV) and timing slack (pg. 472, col. 2 to pg 473).

29. Petschauer et al. disclose a method according to the present invention, an integrated circuit chip is fabricated by the following steps:

1) providing a trial layout in the chip for a victim net and a set of aggressor nets which have segments that lie next to the victim net;

2) assigning to the trial layout of the victim net, the parameters of a line capacitance, a line resistance, and a driver output resistance; and assigning to the trial layout of each aggressor net, the parameters of a coupling capacitance to the victim net, and a voltage transition;

3) estimating, for each aggressor net, a respective peak crosstalk voltage $V_{sub.p}$ which the aggressor net couples into the victim net as a function $V_{sub.p} = K(e^{sup.-X} - e^{sup.-Y})$ where K, X, and Y are products of said parameters;

4) modifying said trial layout and repeating the assigning and estimating steps until a summation of the estimated peak crosstalk voltages in the victim net is within an acceptable level; and,

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5) building the chip with the modified layout for which the summation is within the acceptable level.

30. See particularly: fig. 1 (topology), fig. 5a-6 (influence of switching rate on crosstalk - grouped), fig. 8 (margin), fig. 11 (aggressor transitions), fig. 19, 25 (grouping).

31. **Claims 1-16 are rejected under 35 U.S.C. 102(e) as being clearly anticipated by Carlson et al..**

32. Carlson et al. disclose a method for *analyzing cross-coupling between an attacker signal line, upon which an attacker signal resides, and a victim signal line, upon which a victim signal resides*. The method in the present invention comprises the acts of *selecting the victim signal, selecting the attacker signal, performing timing filtering on a plurality of signal lines to identify a first set of potential attacker signals on a first set of potential attacker signal lines, performing logic filtering on the plurality of signal lines to identify a second set of potential attacker signals on a second set of potential attacker signal lines*, and reducing the effects of the cross-coupling between at least one of the said potential attacker signal lines and the victim signal line.

33. In particular, Carlson et al. (Fig. 1, 3-5, 7 and corresponding text) discloses timing delay prediction; determine electromagnetic coupling between aggressor and victim wires; group the aggressor wires as a function of timing; adjust timing margin so that coupling does not affect circuit switching; take into account signal strengths (claim 2); group aggressor wires into likely, possible, unlikely; consider only likely; consider only likely and possible; scaling the aggressor wires (claim 7).

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Response to Arguments

Response to Arguments - Priority (pg. 9, paper # 9)

34. Applicants are thanked for submitting the priority document.

Response to Arguments - Abstract (pg. 9, paper # 9)

35. The abstract of the disclosure is objected to because of new matter, for the following reasons. The amendment filed is objected to under 35 U.S.C. 132 because it introduces new matter into the disclosure. 35 U.S.C. 132 states that no amendment shall introduce new matter into the disclosure of the invention. The added material which is not supported by the original disclosure is as follows: *wherein a user selects a mode of operation*. This feature does not appear to be disclosed in the original specification. Furthermore, the meaning of this feature is unclear. Applicant is required to cancel the new matter in the reply to this Office Action.

Response to Arguments - Drawings (pg. 9, paper # 9)

36. Applicant's arguments are persuasive and the objection has been withdrawn.

Response to Arguments - Information Disclosure Statement (pg. 10, paper # 9)

37. Applicant's arguments are not persuasive. The request will be withdrawn upon submission of an Information Disclosure Statement as per Applicant's duty to disclose (37 CFR 1.56). It is noted that Applicants rely on unknown external disclosures to provide support for enablement - such

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references have not been provided to the Examiner. It is noted that Applicants have argued (page 10, paper # 9):

“...that to the extent that such subject matter is not expressly disclosed in Applicant’s Specification, it is fully described in the prior art, including in the references cited in the present Office Action. As noted in the Office Action, this was also pointed out in the last full paragraph of page 7 of the Specification.”

Response to Arguments - Claim Objections (pg. 9, paper # 9)

38. Applicant’s arguments are not persuasive to the extent noted earlier.

Response to Arguments - 112(1) Rejections (pg. 10, paper # 9)

39. Applicant’s arguments are not persuasive. Applicants have *not addressed the specific merits* of the 112(1) rejection, and have only asserted:

“...that to the extent that such subject matter is not expressly disclosed in Applicant’s Specification, it is fully described in the prior art, including in the references cited in the present Office Action. As noted in the Office Action, this was also pointed out in the last full paragraph of page 7 of the Specification.”

40. The Examiner respectfully submits that Applicants statement that “...to the extent that such subject matter is not expressly disclosed...” does not address the merits of the rejection. The Examiner requires that Applicants direct Examiner’s attention *to the specification* and point out what *is* expressly disclosed. The Examiner also submits that Applicant’s position puts the Examiner

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in the dubious position of providing enablement to applicant's specification to the extent of the breath of the Examiner's prior art search.

41. Applicants appear to be making a blanket assertion that features not expressly disclosed (*or incorporated by reference*) in the specification are to be considered part of the specification by virtue of their being disclosed in the prior art. This appears to be an attempt to change the specification via attorney argument and is considered as attempt to introduce new matter into the specification. See MPEP section 2145 (Consideration of Applicant's Rebuttal Arguments):

"I. ARGUMENT DOES NOT REPLACE EVIDENCE WHERE EVIDENCE IS
NECESSARY

Attorney argument is not evidence unless it is an admission, in which case, an examiner may use the admission in making a rejection. See MPEP § 2129 and § 2144.03 for a discussion of admissions as prior art. The arguments of counsel cannot take the place of evidence in the record. *In re Schulze*, 346 F.2d 600, 602, 145 USPQ 716, 718 (CCPA 1965); *In re Geisler*, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997) ("An assertion of what seems to follow from common experience is just attorney argument and not the kind of factual evidence that is required to rebut a prima facie case of obviousness."). See MPEP § 716.01(c) for examples of attorney statements which are not evidence and which must be supported by an appropriate affidavit or declaration."

42. Applicants are reminded that said prior art (of record or otherwise) has *not* been incorporated into Applicant's specification. Furthermore, Applicants have not provided any prior art. Additionally,

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Applicant's reference to page 7 as allegedly referenced in the Office Action is not understood. The Examiner stated (paragraph 7, page 3, paper # 6) that,

“It is noted that Applicants have not provided an IDS. Applicants have admitted that they are aware of prior art - see description of figure 1, page 1 of the specification and the last sentence of the last full paragraph on page 7 of the specification.”

The Examiner would like to point out that fulfillment of the duty to disclose, Applicant's admittance regarding prior art disclosure, and sufficiency of disclosure as per 112(1) requirements are separate issues. It is noted that Applicants have not provided the art as referred to on page 7 of the specification which they argue as providing support for enablement. It is also noted that the sentence in question refers to “*many formulae exist for calculating approximations for wires in different topological configurations.*” The Examiner is not sure which formulae and corresponding configurations Applicants are referring to. In any case, Applicants have provided no legal authority for their position.

Response to Arguments - 112(2) Rejections (pg. 10, paper # 9)

43. Applicant's arguments are persuasive with respect to the original 112(2) rejections. However, please note the new 112(2) rejections, necessitated by amendment.

Response to Arguments - 102 Rejections (pp. 10-12, paper # 9)

44. Applicant's arguments are not persuasive. Applicant's basic argument appears to be that while the art “...discloses crosstalk, delay prediction, and/or routing”, it does not disclose

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categorizing the crosstalk interaction into likely, possible or unlikely to cause crosstalk. The Examiner respectfully submits that Applicants have not specifically addressed the sections of the prior art as indicated in the prior art rejections.

45. *Gao et al.* disclose determining whether a line is critical (page 465, col. 1); crosstalk constraints and “ranking” of critical conductors (page 465, col. 2, first full paragraph; page 466, section II, first paragraph); ranking and routing the channels (page 465, col. 2, second paragraph to end of section I, page 466; page 466, section II, first and second paragraphs); and track permutations (page 467, col. 1, last paragraph to page 470, end of section IV) and timing slack (pg. 472, col. 2 to pg 473).

46. *Petschauer et al.* disclose a method according to the present invention, an integrated circuit chip is fabricated by the following steps: 1) providing a trial layout in the chip for a victim net and a set of aggressor nets which have segments that lie next to the victim net; 2) assigning to the trial layout of the victim net, the parameters of a line capacitance, a line resistance, and a driver output resistance; and assigning to the trial layout of each aggressor net, the parameters of a coupling capacitance to the victim net, and a voltage transition; 3) estimating, for each aggressor net, a respective peak crosstalk voltage $V_{sub.p}$ which the aggressor net couples into the victim net as a function $V_{sub.p} = K(e^{sup.-X} - e^{sup.-Y})$ where K, X, and Y are products of said parameters; 4) modifying said trial layout and repeating the assigning and estimating steps until a summation of the estimated peak crosstalk voltages in the victim net is within an acceptable level; and, 5) building the chip with the modified layout for which the summation is within the acceptable level. See

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particularly: fig. 1 (topology), fig. 5a-6 (influence of switching rate on crosstalk - grouped), fig. 8 (margin), fig. 11 (aggressor transitions), fig. 19, 25 (grouping).

47. *Carlson et al.* (Fig. 1, 3-5, 7 and corresponding text) discloses timing delay prediction; determine electromagnetic coupling between aggressor and victim wires; group the aggressor wires as a function of timing; adjust timing margin so that coupling does not affect circuit switching; take into account signal strengths; group aggressor wires into likely, possible, unlikely; consider only likely; consider only likely and possible; scaling the aggressor wires.

48. As per the allegation that the prior art does not disclose categorizing the crosstalk interaction into likely, possible or unlikely to cause crosstalk, the Examiner would also like to point out that a reference anticipates a claim if it discloses the claimed invention such that a skilled artisan could take its teachings combination with his own knowledge of the particular art and be in possession of the invention. *In re Graves*, 36 USPQ2d 1697 (Fed. Cir. 1995); *In re Sasse*, 207 USPQ 107 (CCPA 1980); *In re Samour*, 197 USPQ 1 (CCPA 1978). For example, a skilled artisan knows that the probability that one conductor will electromagnetically perturb a second conductor increases as the distance between the conductors is reduced. This is elementary electromagnetic theory. Merely creating arbitrary (what is the criterion for the categorization?) and artificial categories between likely, possible or unlikely to cause crosstalk is not a patentable step above the prior art teachings. In any case, this is merely routine experimentation in a well known art. See MPEP 2144.05:

“A. Optimization Within Prior Art Conditions or Through Routine Experimentation

Generally, differences in concentration or temperature will not support the patentability of subject

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matter encompassed by the prior art unless there is evidence indicating such concentration or temperature is critical. “[W]here the general conditions of a claim are disclosed in the prior art, it is not inventive to discover the optimum or workable ranges by routine experimentation.” In *re* Aller, 220 F.2d 454, 456, 105 USPQ 233, 235 (CCPA 1955) (Claimed process which was performed at a temperature between 40°C and 80°C and an acid concentration between 25% and 70% was held to be prima facie obvious over a reference process which differed from the claims only in that the reference process was performed at a temperature of 100°C and an acid concentration of 10%). See also *In re* Hoeschele, 406 F.2d 1403, 160 USPQ 809 (CCPA 1969) (Claimed elastomeric polyurethanes which fell within the broad scope of the references were held to be unpatentable thereover because, among other reasons, there was no evidence of the criticality of the claimed ranges of molecular weight or molar proportions.). For more recent cases applying this principle, see *Merck & Co. Inc. v. Biocraft Laboratories Inc.*, 874 F.2d 804, 10 USPQ2d 1843 (Fed. Cir.), cert. denied, 493 U.S. 975 (1989); *In re* Kulling, 897 F.2d 1147, 14 USPQ2d 1056 (Fed. Cir. 1990); and *In re* Geisler, 116 F.3d 1465, 43 USPQ2d 1362 (Fed. Cir. 1997).

B. Only Result-Effective Variables Can Be Optimized A particular parameter must first be recognized as a result-effective variable, i.e., a variable which achieves a recognized result, before the determination of the optimum or workable ranges of said variable might be characterized as routine experimentation. In *re* Antonie, 559 F.2d 618, 195 USPQ 6 (CCPA 1977) (The claimed wastewater treatment device had a tank volume to contractor area of 0.12 gal./sq. ft. The prior art did not recognize that treatment capacity is a function of the tank volume to contractor ratio, and therefore the parameter optimized was not recognized in the art to be a result-effective variable.). See also *In re* Boesch, 617 F.2d 272, 205 USPQ 215 (CCPA 1980) (prior art suggested proportional balancing to achieve desired results in the formation of an alloy). ”

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Conclusion

49. Applicant's amendment necessitated the new ground(s) of rejection presented in this Office action. Accordingly, THIS ACTION IS MADE FINAL. See MPEP § 706.07(a). Applicant is reminded of the extension of time policy as set forth in 37 CFR 1.136(a).

50. A shortened statutory period for reply to this final action is set to expire THREE MONTHS from the mailing date of this action. In the event a first reply is filed within TWO MONTHS of the mailing date of this final action and the advisory action is not mailed until after the end of the THREE-MONTH shortened statutory period, then the shortened statutory period will expire on the date the advisory action is mailed, and any extension fee pursuant to 37 CFR 1.136(a) will be calculated from the mailing date of the advisory action. In no event, however, will the statutory period for reply expire later than SIX MONTHS from the date of this final action.

51. Any inquiry concerning this communication or earlier communications from the examiner should be:

directed to:

Dr. Hugh Jones telephone number (703) 305-0023, Monday-Thursday 0830 to 0700 ET, *or* the examiner's supervisor, Kevin Teska, telephone number (703) 305-9704. Any inquiry of a general nature or relating to the status of this application should be directed to the Group receptionist, telephone number (703) 305-3900.

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mailed to:

Commissioner of Patents and Trademarks

Washington, D.C. 20231

or faxed to:

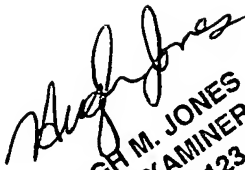
(703) 308-9051 (for formal communications intended for entry) *or*

(703) 308-1396 (for informal or draft communications, please label "*PROPOSED*" or "*DRAFT*").

Respectfully submitted,

Dr. Hugh Jones

August 7, 2002


DR. HUGH M. JONES
PATENT EXAMINER
ART UNIT 2123